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Refael Aharon

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EXAMINER

FELTON, MICHAEL J

ART UNIT

PAPER NUMBER

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/519,380	<b>Applicant(s)</b> AHARON, REFAEL	
	<b>Examiner</b> MICHAEL J. FELTON	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 9/16/2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-7,10-17,19-27,29,30,32 and 37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7,10-17,19-27,29,30,32 and 37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☒ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 9/16/2008 have been fully considered but they are not persuasive.
2. Regarding Applicant's arguments concerning the written description requirement and the indefinite rejections in the prior action concerning the term "raw" or "naturally occurring" vegetative matter, the examiner maintains that it is unclear and the added terms to the claim are not defined in the specification in a way that one of ordinary skill in the art would understand the meets and bounds of the claim. As stated previously, there are at least two ways to interpret the amended claim, and the specification does not clearly define the terms, and therefore, the meaning of the amendment to the claim is unclear and the specification lacks support for adding the terms to the claim.
3. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).
4. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., separation of fibers by size by water jet and not by air jet) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification,

limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

5. It is unclear from the applicant's arguments why the process of Fisher et al. would not be used to sort fibers that are produced by any method, either the methods disclosed by Fisher et al. or by Law et al. The examiner sees no indication in Fisher et al. or Law et al. that would teach away from the combination.

6. Amended claim limitations are addressed in the rejections below.

***Claim Rejections - 35 USC § 112***

7. Claims 1, 2, 4-7, 10-17, 19-27, 29, 30, 32 and 37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not disclose naturally-occurring vegetative raw matter as a raw material for the claimed process.

8. Claim 1, 2, 4-7, 10-17, 19-27, 29, 30, 32 and 37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification discloses using pressures between 500 and 1500 for

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initially break apart pine, does not disclose using these pressures for all vegetative matter. The specification clearly indicates that the range for fluid jets for vegetative material, such as the materials listed in claim 5, is 200 to 1500 atmospheres and the narrow range of 500 to 1500 atmospheres is only indicated for use with pine (see example 3). Therefore, the narrow range of pressures now being claimed in reference to all vegetative matter is new matter as it is not disclosed in the specification.

9. Claims 1, 2, 4-7, 10-17, 19-27, 29, 30, 32 and 37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Claim 1 has been amended to recite "naturally-occurring vegetative raw matter". It is unclear what the meaning of "raw" or "naturally-occurring" is intended. The terms are not defined in the specification and its meaning is unclear. If the applicant intended to indicate that the matter was not processed and in a "raw" state, then this meaning is contradicted by dependent claims such as claim 19, which discloses preliminary preparation of said vegetative matter. In the interest of compact prosecution, the examiner will examine the claims assuming "raw" is intended to indicate that the vegetative material is the "raw material" or feedstock for the process, and that there is no meaning attached to the extent of processing of the feedstock.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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11. Claims 1, 2, 4-7, 10-14, 17, 19, 29, 30, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Law et al. (CA 2,113,737) in view of Fisher (US 5,316,150).

12. Regarding claims 1, 10, 11, 13-14 Law et al. disclose using water jets with pressures between 1 and 5000 psi (claim 6) to break up vegetative matter (cellulosic materials) into individual cellulose fibers by placing the material on screens with successively smaller openings ranging from 2 mesh to 200 mesh (claim 4). Although, Law et al. disclose using water jets up to 5000 psi (340 atmospheres), it would have been obvious to one of ordinary skill in the art at the time of invention to use higher pressure water jets (at 500 atmospheres, for example) to recycle feedstock that one would expect would take more force to break up. For instance, it would have been obvious for one of ordinary skill to apply the invention of Law et al. to recycling cardboard and linerboard, which would require more force to disintegrate than office paper. Although Law et al. do not expressly disclose producing cellulose of predetermined size, the process would be capable of producing fibers of cellulose of predetermined size, not damage the single cellulose fibers, and produce particles with increased surface area compared with the starting material. It would have been obvious to one of ordinary skill in the art at the time of invention that the invention of Law et al. would be capable of the above because it features the same process steps as the instant invention. In addition, although Law et al. may not expressly disclose treating vegetative material, it would have been obvious to one of ordinary skill in the art at the

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time of invention that paper, and cellulose polymers that make up paper, are made by plants and are therefore vegetative materials.

13. Law et al. does not disclose further separating and aligning fibers by using one or more grates. However, Fisher discloses a method for separating long and short fibers, which are usable for different purposes, using grates (col. 3, line 46—col. 4, line 20). Although the raw materials in question between Law et al. and Fisher are different, it would have been obvious to one of ordinary skill in the art at the time of invention to separate fibers by size using the invention of Fisher in the process of Law et al. The motivation to do so would be to separate short, hardwood fibers from softwood fibers used in the raw material used by Law et al. As well known in the art, hardwood fibers are useful for different purposes than softwood fibers, and therefore can be diverted to different product streams.

14. Regarding claims 2 and 7, Law et al. disclose processing waste paper, which has been previously been preliminarily prepared through a first papermaking process that includes making a pulp (soaking in water).

15. Regarding claims 4 and 5, Law et al. disclose processing waste paper, which could be agricultural waste, such as agricultural product packaging or cartons. In addition, it is well known that the vegetative matter in paper is produced primarily from trees, which are plants. In addition, Law et al. disclose that it is well known to use water jets in industry as well as using fluid to make pulp from cellulosic materials such as wood, waste papers and non-wood plants (Background of the Invention, lines 23-27). This teaching of Law et al. would lead one of ordinary skill in the art to understand that

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the process of Law et al. would be applicable to other raw materials beyond the waste paper claimed by Law et al. to materials such as wood and non-wood plants. Law et al. provide motivation to use liquid jets to replace standard pulping and the pulping of prior arts described by indicating that using water jets is a more economical method for transforming materials into individual fibers (Background of the Invention, page 2, line 5-13).

16. Regarding claims 6, Law et al. disclose that debarking logs is known. It would have been obvious to one of ordinary skill in the art that vegetative matter routinely used to make paper, such as trees and logs, is debarked prior to pulping.

17. Regarding claims 12 and 29, Law et al. disclose using screens ranging from between 2 to 200 mesh that would have successively smaller openings in between. It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the screen sizes to the material being processed and the final desired fiber size. In addition, more than three or four screens can be used.

18. Regarding claims 17 and 19, Law et al. disclose using waste material that has already been preliminarily processed, as well as delignified and possibly bleached systems. These processes are notoriously well known in the production of paper products. Therefore, the process of Law et al. obviously includes these process steps.

19. Regarding claims 30 and 32, the bars of Fisher are spaced at 1 or 2 bars per inch, however, it would have been obvious to one of ordinary skill in the art at the time of invention to optimize the number of bars per inch (including between 1 to 20 bars,



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between 25 to 100 bars per inch, and gratings with spaces 20-300 micrometers) to correspond to the length of fibers to be separated by the process described by Fisher.

20. Claims 15, 16, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Law et al. (CA 2,113,737) and Fisher (US 5,316,150) as applied to claim 1 above in further view of Lalonde et al. (US 3,334,578).

21. Fisher discloses that the fibers are bailed using a bailing machine (col. 5, 20-22) but does not disclose the specific operating conditions of the bailing process. Bailing fibers such as that disclosed by Fisher can be accomplished by pressing the fibers in a bailing press, such as that disclosed by Lalonde et al. Although Lalonde et al. does not disclose the pressure created by the press, it would have been obvious to one of ordinary skill in the art that the machine of Lalonde et al. would produce pressures much higher than atmospheric pressure during operation, including pressures between 20 and 400 ATM. In addition, the bale produced by Lalonde et al. is at room temperature (approximately 25°C), which is not significantly different from 30°C.

22. Claims 20-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Law et al. (CA 2,113,737) as applied to claim 17 above in further view of Blanchette et al. (US 5,055,159). Law et al. do not disclose the use of biological delignification, and in particular delignification using microorganisms in the production of paper (of which waste paper is used as the raw material for Law et al.). However, Blanchette et al. disclose a biological delignification process, in which vegetative matter was placed in

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reactors containing water (col. 8, 50-61) and an inoculum of a particular fungus. The vegetative matter soaked in nutrient medium, inoculated, and was then held at a particular temperature, slightly above room temperature (27° C) and incubated at high humidity (Col. 11, 1-49). The mixture was stirred using humidified air. Blanchette et al. also disclose that while their invention is based on laboratory scale operation, it could be used in other types of bioreactors (col. 12, 50-55). It would have been obvious to one of ordinary skill in the art to combine known pulping methods used in the production of paper with the delignification by microorganism disclosed by Blanchette et al. By using microorganisms to delignify the vegetative matter, energy consumption is reduced and lower volumes of paper processing chemicals are needed.

23. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Law et al. (CA 2,113,737) as applied to claim 19 above in further view of Christiansen et al. (US 5,013,404). Law et al. do not disclose using stabilized hydrogen peroxide as a delignification or bleaching agent. However, Christiansen et al. disclose a stabilized hydrogen peroxide for use as a bleaching agent (abstract). It would have been obvious to one of ordinary skill in the art at the time of invention to use a stabilized hydrogen peroxide to bleach paper pulp (used in the raw material being used by Law et al.), because hydrogen peroxide is a widely known bleaching agent for paper pulps.

### ***Conclusion***

24. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL J. FELTON whose telephone number is (571)272-4805. The examiner can normally be reached on Monday to Friday, 7:30 AM to 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Phillip C. Tucker can be reached on 571-272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. J. F./  
Examiner, Art Unit 1791

/Philip C Tucker/  
Supervisory Patent Examiner, Art Unit 1791